

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554**

In the Matter of	)	
	)	
	)	
Amendment of Part 101 of the Commission's	)	
Rules to Facilitate the Use of Microwave for	)	
Wireless Backhaul and Other Uses and to Provide	)	WT Docket No. 10-153
Additional Flexibility to Broadcast Auxiliary	)	
Service and Operational Fixed Microwave	)	
Licensees	)	
	)	
Petition for Rulemaking filed by Fixed Wireless	)	
Communications Coalition to Amend Part 101 of	)	
the Commission's Rules to Authorize 60 and	)	RM-11602
80 MHz Channels in Certain Bands for Broadband	)	
Communications	)	
	)	

**COMMENTS OF METROPCS COMMUNICATIONS, INC.**

MetroPCS Communications, Inc. ("MetroPCS"),<sup>1</sup> by its attorneys, hereby respectfully submits its comments in response to the *Further Notice of Proposed Rulemaking* ("FNPRM") released August 9, 2011, by the Federal Communications Commission (the "FCC" or "Commission") in the above-captioned proceedings.<sup>2</sup> MetroPCS commends the Commission's

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<sup>1</sup> For purposes of these Comments, the term "MetroPCS" refers to MetroPCS Communications, Inc. and all of its FCC license holding subsidiaries.

<sup>2</sup> *Amendment of Part 101 of the Commission's Rules to Facilitate the Use of Microwave for Wireless Backhaul and Other Uses and to Provide Additional Flexibility to Broadcast Auxiliary Service and Operational Fixed Microwave Licensees; Petition for Rulemaking filed by Fixed Wireless Communications Coalition to Amend Part 101 of the Commission's Rules to Authorize 60 and 80 MHz Channels in Certain Bands for Broadband Communications*, Report and Order, Further Notice of Proposed Rulemaking, and Memorandum Opinion and Order, WT Docket No.

actions to make more spectrum available for wireless backhaul and supports the effort to increase carriers' flexibility in putting backhaul spectrum to beneficial use. In support, the following is respectfully shown:

## I. INTRODUCTION

The United States is experiencing a wireless broadband revolution in which demand for mobile wireless broadband and mobile wireless broadband Internet access is growing exponentially every quarter.<sup>3</sup> As the first carrier to launch commercial 4G services using long-term evolution ("LTE") in the United States and to offer both the first LTE handset and the first 4G LTE Android handset in the world, MetroPCS has firsthand experience in seeking to satisfy the seemingly insatiable demand for mobile wireless broadband services. Meeting this challenge requires wireless providers to have access to two scarce resources: (1) spectrum to offer mobile wireless broadband services; and (2) suitable backhaul facilities to run increasingly expansive networks.

The Commission has identified the need to address both of these critical resources, and the *Report and Order* in this proceeding makes great strides with respect to backhaul resources.<sup>4</sup> MetroPCS applauds the Commission's efforts to make additional spectrum available for wireless backhaul and to accord carriers greater flexibility in the use of such spectrum. Backhaul plays an important role in mobile wireless broadband deployment since the capacity of a network will be

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10-153, RM-11602 (Aug. 9, 2011) (hereinafter the *Further Notice of Proposed Rulemaking* will be referred to as the "FNPRM" and the *Report and Order* section of the filing will be referred to as the "Report and Order.").

<sup>3</sup> See *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, Fifteenth Report, WT Docket No. 10-133, ¶¶ 158 – 160 (2011) ("*Fifteenth Report*") (estimating that wireless connections are increasing by millions each year).

<sup>4</sup> See generally *Report and Order*.

limited by the capacity of any given link in the network. Adequate backhaul capacity is essential to maximize the capacity of the entire network. In the past, T-1 or other time division facilities were adequate for backhaul. Now, 10 GB or greater Ethernet backhaul is required to support the faster speeds and greater demands placed upon LTE networks. Wireless backhaul also has played an important role in fostering ubiquitous mobile wireless broadband service because it allows carriers to deploy mobile wireless broadband in locations where optical or wired Ethernet is not available, or where the cost of fixed facilities would be prohibitive. Wireless backhaul also accords greater flexibility in increasing capacity at cell sites and for the deployment of picocells.

Not surprisingly, the demand for wireless backhaul is growing at an accelerating pace, and this trend will continue as the wireless industry requires more data and consumes greater amounts of bandwidth. The Commission has recognized that backhaul is an important component to deployment of wireless broadband services and has determined that “[i]n light of the growing need for backhaul, cost-efficient access to adequate backhaul will be a key factor in promoting robust competition in the wireless marketplace.”<sup>5</sup> As backhaul costs now comprise a considerable amount of a wireless operator’s network operating expenses, MetroPCS urges the Commission to continue its efforts to ease the backhaul constraints faced in urban areas. MetroPCS also supports the Commission’s proposal to amend the Part 101 rules regarding the 6 GHz and 11 GHz spectrum to promote flexibility in providing wireless backhaul.

In order to keep costs low and ensure adequate microwave backhaul is available to meet current and future needs, MetroPCS supports the Commission’s recommendations that antenna standards be relaxed to allow for smaller antennas and that wider bandwidths be permitted

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<sup>5</sup> *Fifteenth Report*, at ¶ 322.

through the combination of channels. Smaller antennas are less expensive to install and maintain, and will result in reduced site rental costs. These cost savings will stimulate investment. In addition, wider bandwidths will allow mobile wireless broadband services to accommodate advanced functionalities such as video and Internet browsing which require greater bandwidth capacity. By permitting the combination of bands, the Commission will be removing obstacles to innovative technology and will ensure that the full benefits of such technology are realized.

## **II. SMALLER ANTENNAS WILL REDUCE COSTS AND STIMULATE INVESTMENT**

The Commission has not established a specific size requirement for microwave dish antennas, but rather, has adopted specifications “based on the technical sophistication of the communications equipment and the needs of the various user of the band at the time.”<sup>6</sup> The Commission’s approach wisely recognizes that “eliminating the beamwidth requirement will enable licensees to use smaller, less expensive antennas that put less of a load on support structures and thereby reduce the cost of those structures.”<sup>7</sup> MetroPCS calls on the Commission to go one step further in recognizing the associated benefits of smaller antennas. Relaxing antenna standards to permit the use of smaller antennas in the 6 GHz, 18 GHz, and 23 GHz bands also will reduce costs, stimulate increased investment in the industry, and finally, increase the number of available microwave dishes on sites.

Smaller antennas “are less expensive to install because they weigh less and need less structural support, and cost less to maintain because they are less subject to wind load and other

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<sup>6</sup> *Amendment of Part 101 of the Commission’s Rules to Facilitate the Use of Microwave for Wireless Backhaul and Other Uses and to Provide Additional Flexibility to Broadcast Auxiliary Service and Operational Fixed Microwave Licensees, et al.*, Notice of Proposed Rulemaking and Notice of Inquiry, 25 FCC Rcd 11246, 11271 ¶ 65 (2010) (*Wireless Backhaul NPRM/NOI*).

<sup>7</sup> *Id.* at ¶ 52.

destructive forces.”<sup>8</sup> For example, the cost of a microwave dish antenna is approximately \$100 per foot per month. Thus, even if the revised rule allows for a reduction of just one foot, the annual savings would be \$1,200, and the savings over a ten year period would be \$12,000. This would make an additional \$12,000 available for further network expansion and innovation. Multiple this savings times the number of microwave dishes in a robust network and the result is a significant sum that can be used to enable the industry to grow and prosper.

Wind loading also would be mitigated by the use of smaller antennas. Larger antennas often require carriers to undertake additional structural studies. Tower owners and engineering considerations may require carriers to invest additional capital to enable certain towers to sustain the higher wind loading of larger dishes. The costs for these studies and resulting structural improvements can run into the tens of thousands, if not hundreds of thousands, of dollars. Reduced antenna sizes will decrease wind loading, and smaller dishes may not require engineering studies at all. Given that a system may comprise tens of thousands of sites, elimination of only a small percentage of site improvements could result in tens of millions of dollars saved. Again, these resulting reductions in capital and operating expenses will stimulate investment, as operators will now have additional funds to invest in the industry and further innovation.

Smaller antennas also will allow for installation at a wider variety of sites. Many sites that are incapable of supporting larger dishes, such as rooftops and electrical transmission towers, will now be able to support and maintain these smaller, lighter-weight, dishes.<sup>9</sup> In addition, smaller antennas will allow existing towers to support a greater number of antennas at

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<sup>8</sup> *Amendment of Part 101 of the Commission’s Rules to Modify Antenna Requirements for the 10.7 – 11.7 GHz Band*, Report and Order, 22 FCC Rcd 17153, 17160 – 17161 ¶ 11 (2007) (“*11 GHz R&O*”).

<sup>9</sup> *Id.* at 17160 – 17161 ¶ 11.

once. This will reduce costs and create additional opportunities for wireless providers to access sites in critical areas. Because the construction of new antenna sites can meet with local resistance, and because the process of authorizing new towers can be time consuming, the more intensive use of existing sites is definitely worthwhile. Through the combination of reduced costs, additional investments and increased installation options, smaller antennas therefore will provide a greater opportunity for new providers to enter the market.<sup>10</sup>

### **III. WIDER BANDWIDTHS ARE NECESSARY TO OBTAIN FULL BENEFITS OF NEXT GENERATION TECHNOLOGY**

The benefits of smaller antennas will be even greater if the change is coupled with wider spectrum bandwidth sizes. Having wisely adopted antenna size specifications, “based on the technical sophistication of the communications equipment and the needs of the various user of the band at the time,” the Commission should take a similar approach to widen the available bandwidth of backhaul spectrum.<sup>11</sup> As earlier noted, due to recent trends in the mobile wireless industry, the demand for both spectrum and backhaul has increased dramatically. Mobile wireless data usage has grown as a result of the increased adoption of smartphones and other Internet-capable mobile devices, “making access to sufficient backhaul an increasingly central component of a mobile wireless provider’s overall performance.”<sup>12</sup> As the Fixed Wireless Communications Coalition (“FWCC”) states, “[a] shortage of backhaul capacity can inhibit speed at the handset, even if adequate last-mile spectrum is available.”<sup>13</sup> The more capacity that is available, the more opportunities will exist for innovative technologies to bring the U.S. to the

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<sup>10</sup> See *Wireless Backhaul NPRM/NOI*, at ¶ 66 (stating that “tower siting costs and scarcity of desirable antenna position may constitute significant entry barriers to new providers.”).

<sup>11</sup> See discussion *supra* Part II.

<sup>12</sup> *Fifteenth Report*, at ¶ 323.

<sup>13</sup> Petition for Rulemaking, Fixed Wireless Communications Coalition, RM-11602, 2 (filed May 14, 2010) (“*FWCC Petition*”).

next stage in wireless technology. MetroPCS supports the Commission's proposal to allow wider channels in the 6 GHz and 11 GHz bands, as this will allow for greater capacity and will allow providers and consumers alike to obtain the full benefits of next generation wireless technology.

Currently, with 25 and 30 MHz channel sizes, approximately 150 Mbps is supported. As the Commission cites, and FWCC anticipates, "strong growth in mobile broadband . . . will soon push backhaul requirements . . . toward[s] 360/Mb/s per channel."<sup>14</sup> Increasing the bandwidth of channels will facilitate increasing broadband speeds, and the Commission should recognize the benefits to be derived from this practice by permitting the combination of adjacent 30 and 40 MHz channels. Therefore, such combinations will allow backhaul providers to better deal with the explosion of data in the wireless industry.

#### IV. CONCLUSION

The combination of flexible antenna sizes and wider broadband channels will play a key role in satisfying the growing need for backhaul. Backhaul represents a significant portion of a mobile wireless operator's network operating expenses, and the Commission should be commended for its efforts to promote cost-efficient access to adequate backhaul. By permitting smaller antennas to be used, overall costs will be reduced due to lower installation and maintenance fees. Moreover, since antenna site rental generally is priced per foot per month, smaller antennas will result in cheaper monthly site rent for operators. The Commission should also adopt the FWCC request to combine channels to allow for wider bandwidth. Wider bandwidth will provide greater capacity for next-generation technology and allow for a continued robust competitive marketplace.

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<sup>14</sup> *FNPRM*, at ¶ 87 (quoting *FWCC Petition*, 2).

Respectfully submitted,

MetroPCS Communications, Inc.

A handwritten signature in black ink, appearing to read "Carl W. Northrop", with a stylized, flowing script.

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